DOCUMENT RESUME

ED 337 065 HE 024 874

AUTHOR Posey, Ellen I.
TITLE Georgia State University Spending Patterns and the Atlanta Economy, 1989. Institutional Research Report No. 90-24.
INSTITUTION Georgia State Univ., Atlanta. Office of Institutional Research.
PUB DATE May 90
NOTE 28p.
PUB TYPE Reports - Research/Technical (143) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS College Faculty; College Students; *Economic Impact; *Employment Patterns; *Expenditures; Higher Education; Institutional Research; Questionnaires; *School Community Relationship; School Statistics
IDENTIFIERS *Georgia State University

ABSTRACT

This study sought to provide an up-to-date picture of the substantial dividend of jobs and income which Georgia State University provides to the Atlanta area. The study proceeded in six phases: (1) collection of direct university enrollment, payroll, and spending data; (2) survey and estimation of student spending; (3) survey and estimation of faculty/administration/staff spending; (4) calculation of the local multiplier; (5) calculation of employee equivalent of student spending; and (6) computation of the university's total impact on local income and employment. The principal findings revealed that the university provided 2,249 full-time jobs and 747 part-time jobs in 1989, and that university-related spending generated an additional 2,835 full-time positions in the Atlanta community. In addition, it was found that the average student annually spent $11,682 in the local economy, the faculty/administration/staff members spent locally an average of $20,081 each, and direct spending by the university, faculty/administration/staff, and students totaled $156,604,167 (exluding expenditures by most part-time students). Appendices include the student and faculty/administration/staff questionnaires, university data, and several computational analyses. Contains 17 references. (GLR)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED337065

Office of Institutional Research

GEORGIA STATE UNIVERSITY SPENDING PATTERNS AND THE ATLANTA ECONOMY, 1989

Institutional Research Report No. 90-24

Georgia State University

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

ELLEN F POSEY

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

HE 024 874

Georgia State University, a unit of the University System of Georgia, is an equal opportunity educational institution and is an equal opportunity/affirmative action employer

BEST COPY AVAILABLE

GEORGIA STATE UNIVERSITY SPENDING PATTERNS AND THE ATLANTA ECONOMY, 1989

Institutional Research Report No. 90-24

by

Ellen I. Posey

Office of Institutional Research
Georgia State University

May, 1990

Abstract

This study was undertaken to give interested members of the Atlanta community an up-to-date picture of the substantial extra dividend of jobs and income which Georgia State University provides. The study used the Salley model (1976) and proceeded in six phases: 1) collection of direct university enrollment, payroll and spending data; 2) survey and estimation of student spending; 3) survey and estimation of faculty/administration/staff spending; 4) calculation of the local multiplier; 5) calculation of employee equivalent of student spending; and 6) computation of the university's total impact on local income and employment.

The principal findings are:

* Since each dollar of direct spending turns over several times in the 18-county Atlanta metropolitan area, the total impact of Georgia State University was calculated at $241,170,417.

* The university directly provided 2,249 full-time jobs and 747 part-time jobs in 1989. University-related spending generated an additional 2,835 full-time positions in the Atlanta community.

* The University's local purchases amounted to $26,052,435 in fiscal year 1989.

* The average student annually spends $11,682 in the local economy.

* Faculty/administration/staff members spend locally an average of $20,081 each.

* Direct spending by the university, faculty/administration/staff and students totaled $156,604,167. This figure is conservative since it omits spending by most part-time students.

Table of Contents

	Page
Introduction	1
Purpose	2
Previous Economic Impact Studies	2
Plan of the Study	3
Results	6
Summary	8
References	11

List of Tables and Figures

Table		Page
1	Summary Characteristics of Previous Impact Studies	4

Figure		
1	Atlanta Spending Patterns for Fiscal Year 1989	9

Georgia State University Spending Patterns and the Atlanta Economy, 1989

In addition to its primary aims of educating people and pushing forward the boundaries of human knowledge, Georgia State University also broadens the local social and political environment and, simultaneously, provides the community with jobs and considerable income.

It is difficult to translate the long-run benefits of expanded cultural activity and improved human resources into concrete measures. On the other hand, it is possible to study empirically the university's immediate value to the community in terms of employment and income. In 1983, the Office of Institutional Research conducted such a study to give interested members of the Atlanta community a clearer picture of the substantial extra dividend of jobs and income which Georgia State University provides (Posey, 1983).

Using estimating techniques developed in previous studies at other postsecondary educational institutions, the Georgia State University impact study identified and measured three channels by which university-related spending enters the Atlanta income stream. These are direct university purchases, the university payroll, and spending by the student body.

These primary channels of direct spending, although substantial, do not give a complete picture, however. Because of the interdependence of a high-consumption, mass-production economy, these initial purchases induce additional rounds of local spending.

Consequently, the university's total economic influence is some multiple of the level of direct spending. The 1983 study, utilizing Salley's model, estimated the Georgia State University spending multiplier to be 1.60. Thus, each dollar of initial university spending induces an additional sixty cents of income in the Atlanta metropolitan area.

Purpose

The purpose of the present study is to give interested members of the Atlanta community an up-to-date picture of the substantial extra dividend of jobs and income which Georgia State University provides. In the ensuing years since the 1983 economic impact study appeared, substantial growth has occurred in the dollar amounts which Georgia State University distributes to Atlanta for educational and general expenditures. This flow of funds takes the form of payrolls (faculty/administration/staff) and various material purchases. During this same six year period, the dollar amount spent by faculty/staff/administration has also increased. This growth reflects a rise in consumer prices since the 1983 impact study was conducted.

Previous Economic Impact Studies

During the 1960s and 1970s, economic impact studies became the vehicle to promote the positive attributes of nonprofit institutions for their local areas. Postsecondary educational institutions were prominent among these. A series of studies appeared calling attention to the substantial dividend of jobs and incomes a university provides its local community in the course of pursuing its primary educational and cultural aims

(Acker, 1971; Bellenger, 1971; Bonner, 1968; Caffrey & Isaacs, 1971; Johnson, 1970; Kelly, 1971; Messner, 1969; Stordahl, 1966; University of Pittsburgh, 1972; Vizard, 1967).

The model used by institutions conducting economic impact studies still employs the model presented in the classic work of Caffrey and Isaacs in 1971. To date, no significant change in models or techniques has occurred. Table 1 summarizes the contributions of 14 classic studies. However, since 1971, succeeding studies have resolved many conceptual problems and models have been adapted to allow a broader focus of study. Kinnick and Walleri (1987, p. 68) report that this focus varies from "one on money in circulation, to multiple impacts, to the emerging and broader focus on economic development." Salley (1979) provides a comprehensive review of the economic impact literature. All of the studies estimate the demand for goods and services in the community resulting directly from expenditures by the university and its faculty and students.

Plan of the Study

The present research duplicates the survey methodology of Posey (1983) and also recomputes the differential expenditure multiplier using local-value added data.

The estimation of the university's economic impact proceeds in six distinct phases:

(1) Collection of direct university enrollment, payroll and data.

(2) Survey and estimation of student spending.

Table 1

Summary Characteristics of Previous Impact Studies

Institution and year	Major contribution	Major shortcoming	Use of Multiplier
University of Bridgeport (1964)	Recognizes the "export" nature of college services	Considers only direct expenditures of university	No
Northern Michigan (1965)	Disaggregates university spending by types of goods	Considers only direct expenditures of university	No
Husson College (1967)	Makes first use of multiplier to estimate induced spending	Derivation of multiplier is not specific	Yes (2.0)
University of Colorado (1968)	Considers input/output analysis but rejects it as too costly	Ignores induced effects of student spending	Yes (1.37)
University of Connecticut (1969)	Recognizes cyclical stability of university employment	Includes no report of survey results	No
University of Florida (1970)	Justifies all university employment as basic	Basic employee equivalents of student spending are biased upward	Yes (1.4)
Wisconsin State University (1970)	Estimates future impact based on enrollment projections	Derivation of multiplier is not specific	Yes (2.0-2.3)
University of Alabama (1971)	Illustrates upward bias of aggregate employment multipliers	Produces unusually high multiplier resulting from aggregate approach	Yes (4.35)
Idaho State University (1971)	Makes first attempt to disaggregate student spending	Sample design leads to considerable bias	No
Eastern Kentucky University (1971)	Makes first use of student spending diaries	Derivation of multiplier is not specific	Yes (1.75)
University of Pittsburgh (1972)	Uses comprehensive data collection	There is no independent estimate of multiplier	Yes (2.0)
Kent State University (1973)	Uses specific calculation of university sector multiplier	Assumes university multiplier and service sector multiplier are same	Yes (1.09)
Georgia State University (1976)	Uses specific calculation of alternative multiplier models	Does not consider negative tax impact or positive human capital impact	Yes (1.48)
Georgia Institute of Technology (1978)	Estimates contribution of graduates and publications as well as economic impact	Gross input/output multiplier overstates local impact	Yes (2.92)

Source: Salley (1979)

(3) Survey and estimation of faculty/administration/staff spending.

(4) Calculation of the local multiplier.

(5) Calculation of the employee equivalent of student spending.

(6) Computation of the university's total impact on local income and employment.

The Business Office provided state funds expenditure data for the fiscal year 1989. The data which were initially classified by university object/expenditure code, were regrouped to correspond to the Standard Industrial Classification (SIC) used by the Department of Commerce. This was necessary because virtually all Department of Commerce local value-added and sales-payroll ratios are published only for the SIC code industry groups.

The Business Office also provided gross payroll figures for the 1989 fiscal year for full-time and part-time employees. The number of employees by category are from Personnel Services and the number of students by category came from the Office of the Registrar. (See Appendix A, "University Data.")

The Office of Institutional Research conducted a survey of student spending patterns (Appendix B-1) and of faculty/administration/staff spending patterns (Appendix C-2). A random sample of the student body produced 1,977 complete responses and a random sample of faculty survey produced 284 complete responses. Population estimates were then calculated from these results. (See Appendices B-2 and C-2).

Next, the local multiplier value was calculated (Appendix E). The calculation proceeds in three steps. First the payroll/sales ratio used as a proxy for local-value added is calculated from census data. Next, the initial impact of local university purchases is calculated using the value added figures obtained in the first step (Appendix D). The multiplier value is then calculated using the local purchases impact figure from the second step, the gross payroll figures from Appendix A and the results of the faculty/administration/staff spending survey.

The employee equivalent of student spending was then calculated in order to assess the university's impact on generating additional local employment (Appendices F-1 and F-2). Finally, the total impact of the university's spending on local income and employment was calculated using the local multiplier value.

Results

The immediate and tangible impact on Atlanta flows from three direct spending sources associated with Georgia State University. The first of these is the direct purchase of goods and services needed for the university's day-to-day operations. The second is the spending patterns of the university's faculty/administration/staff. The third primary channel of economic impact is the spending patterns of the university's student body.

Local general funds purchases during fiscal year 1989 totaled $26,052,435 (Appendix D). This amount was the total of virtually all purchases since the university is located in the

regional wholesale supply center and very few purchases are made outside the area. All local orders will not produce additional local income if the actual materials are manufactured elsewhere. However, local value added ratios adjust for this income leakage. Purely nonlocal initial purchases were limited to periodical subscriptions and some travel expenses.

The annual local spending by faculty/administration/staff for 1989 is estimated to be an average of $20,081 per person (Appendix C-2). Total local spending by 2,996 university employees is $49,805,748. Although this total figure includes 747 part-time employees, their local expenditures cannot be attributed entirely to the university because payroll records indicate that only $7,688,046 was paid out to part-time personnel (see Appendix A). The ratio of full-time employee local spending (2249 X $20,081 = $45,162,169) to full-time employee payroll ($74,810,603) is .604 ($45,162,169 / $74,810,603 = .604). Local spending by part-time employees attributable to the university is $4,643,579, or .604 of their gross payroll from the university (.604 X $7,688,046 = $4,643,579). Therefore total local spending by faculty/administration/staff is $49,805,748 or the combined local spending of full-time employees ($45,162,169) and part-time employees ($4,643,579).

Annual local spending by students during 1989 is estimated to be $11,682 on average. Since many students are professionally employed in Atlanta and are incidentally enrolled in Georgia State University on a part-time basis, all student spending is not directly attributable to the university. This study found

that 30 percent of the student body is living in Atlanta because of their enrollment in Georgia State University. Either they have moved to the area to attend this school, or they would have moved elsewhere to attend school if Georgia State University were not located in the Atlanta area. A total of 6,912 students fall in this category. Their spending is $80,745,984.

Total initial university spending from these three sources amounts to $156,604,167. The figure is conservative because it omits spending by most part-time students. To obtain the total local expenditure figure, this amount is increased by the local multiplier: 1.54 X $156,604,167 = $241,170,417. Figure 1 summarizes these findings.

Total local employment is estimated similarly. Initial employment is 3,301, consisting of the 2,249 full-time employees plus the 1,052 initial full-time jobs attributable to student spending (Appendices F-1 and F-2). To obtain the total employment impact figure, this level is increased by the local multiplier. Using the estimator, 1.54, a total of at least 5,084 full-time jobs in the Atlanta area may be attributed to Georgia State University.

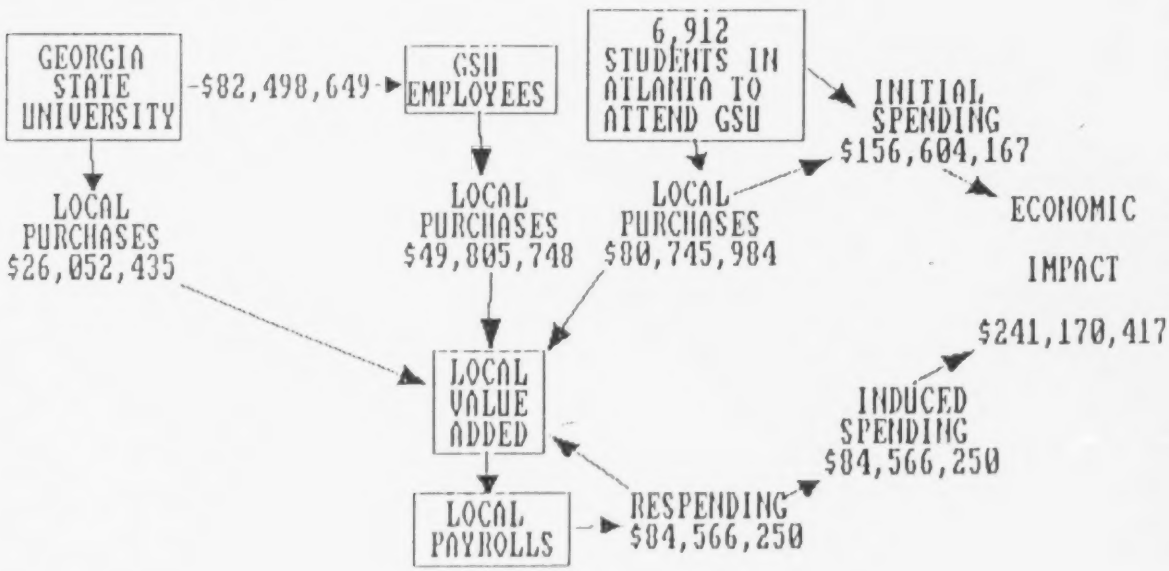
Summary

This study was undertaken to give interested members of the Atlanta community an up-to-date picture of the substantial extra dividend of jobs and income which Georgia State University provides.

The study used the Salley model (1976) and proceeded in six phases:

FIGURE 1

ATLANTA SPENDING PATTERNS FOR FISCAL YEAR 1989



(1) Collection of direct university enrollment, payroll and spending data.

(2) Survey and estimation of student spending.

(3) Survey and estimation of faculty/administration/staff spending.

(4) Calculation of the local multiplier.

(5) Calculation of employee equivalent of student spending.

(6) Computation of the university's total income and employment.

Highlights from the findings follow:

* Since each dollar of direct spending turns over several times in the 18-county Atlanta metropolitan area, the total impact of Georgia State University was calculated at $241,170,417.

* The university directly provided 2,249 full-time jobs and 747 part-time jobs in 1989. University-related spending generated an additional 2,835 full-time positions in the Atlanta community.

* The University's local purchases amounted to $26,052,435 in fiscal year 1989.

* The average student annually spends $11,682 in the local economy.

* Faculty/administration/staff members spend locally an average of $20,081 each.

* Direct spending by the university, faculty/administration/staff and students totaled $156,604,167. This figure is conservative since it omits spending by most part-time students.

REFERENCES

Acker, R. The economic impact of expenditures by out-of-state students at a regional state university. Institutional Research and Institutional Policy Formulation. Tallahassee, Florida: Association for Institutional Research, 1971, 128-133.

Bellenger, D. The income and employment impact of the University of Alabama on Tuscaloosa County. Alabama Business, 1971, 10, 1-6.

Bonner, E. The economic impact of a university on its local community. Journal of the American Institute of Planners, 1968, 5, 339-343.

Caffrey, J. & Isaacs, H. Estimating the impact of a college or university on the local economy. American Council on Education, 1971.

Johnson, J. The economic impact of a state university on its community. Unpublished dissertation, University of Missouri, 1970.

Kelly, J. & Peterson, R. How much money do students spend in a college town? College Management, 1971, 26-27.

Kinnick, M. K. & Walleri, R. D. Economic impact studies. In J. A. Muffo & G. W. McLaughlin (Eds.), A primer on institutional research. Tallahassee, Florida: Association for Institutional Research, 1987.

Messner, S. Market analysis for the single industry community: an illustrative study of a university town. Storrs, Conn: University of Connecticut, 1969.

Posey, E. I. Georgia State University spending satterns and the Atlanta economy, 1983 (Institutional Research Report No. 84-2). Atlanta: Georgia State University, Office of Institutional Research, August, 1983.

Posey, E. I. Georgia State University spending patterns and the Atlanta economy, 1985 (Institutional Research Report No. 86-6). Atlanta: Georgia State University, Office of Institutional Research, September, 1985.

Salley, C. D. Georgia State University spending patterns and the Atlanta economy (Institutional Research Report No. 77-8). Atlanta: Georgia State University, Office of Institutional Planning, December, 1976.

Salley, C. D. Calculating the economic multiplier for local university spending. Research and Planning for Higher Education. Tallahassee, Florida: Association for Institutional Research, 1978, 49-54.

Salley, C. D. Georgia State University spending pattern and the Atlanta economy, 1978 (Institutional Research Report No. 79-8). Atlanta: Georgia State University, Office of Institutional Planning, February, 1979.

Schaffer, W. A. & Biven, W. C. The impact of Georgia Tech: Money, people, ideas. Atlanta: Georgia Institute of Technology, 1978.

Stordahl, K. & Pappas, C. Contribution of Northern Michigan University to the economy of the Marquette area. Office of Institutional Research, N.M.U., 1966.

University-Urban Interface Program, The impact of the University of Pittsburgh on the local economy. University of Pittsburgh, 1972.

Vizard, R. The economic impact of Husson College on Bangor, Maine. Unpublished master's thesis, University of Maine, 1967.

Appendices

A. University Data

B-1. Student Questionnaire

B-2. Estimation of Student Spending

C-1. Faculty/Administration/Staff Questionnaire

C-2. Estimation of Faculty/Administration/Staff Spending

D. Calculation of Initial Impact by University Purchases Using Local Value-Added

E. Computation of a Differential Expenditure Multiplier Using Local Value-Added

F-1. Atlanta SMSA Sales/Employee Ratios

F-2. Calculation of Employee Equivalent of Student Spending

APPENDIX A

UNIVERSITY DATA

1. Student Population (Fall Quarter, 1989)

	Male	Female	Total
Developmental Studies	509	685	1,194
Freshman	1,157	1,671	2,828
Sophomore	1,110	1,641	2,751
Junior	1,447	1,946	3,393
Senior	2,065	2,701	4,766
Law	313	295	608
Graduate	2,693	3,506	6,199
Other	542	758	1,300
Total	9,836	13,203	23,039

2. Faculty/Administration/Staff Population (Fall Quarter, 1989)

	Full-Time	Part-Time
Faculty	753	39
Administration	298	9
Staff	1,198	699
Total	2,249	747

3. University Local Expenditures = $26,052,435

4. Gross University Payroll for fiscal year 1989

Full-Time =	$74,810,603
Part-Time =	7,688,046
	$82,498,649

Appendix B-1

Student Questionnaire

If you have filled this questionnaire out in a previous class, you need not complete it again.
Please circle your response where appropriate.

1. How long have you been living in the Atlanta area? _____ (years)

2. What year were you first enrolled as a GSU student? 19____ 3. Your age? _____

4. Class: a) Developmental Studies b) Freshman c) Sopohmore d) Junior e) Senior f) Law
   g) Masters h) Specialist i) Doctorate j) Other

5. a) Female b) Male 6. a) Married b) Single c) Divorced d) Widowed

7. a) Full-time student b) Part-time student

8. Did GSU's location in Atlanta influence your decision to live in the Atlanta area a) Greatly b) Somewhat
   c) Not at all

9. What do you spend each quarter for tuition and fees? _____

10. Employed: a) Full-time b) Part-time c) Not employed d) Other

11. Where you presently live, what is the:
    a) Total number of rooms _____
    b) Number of bedrooms _____
    c) Number of bathrooms _____

12. In what type of housing do you reside? a) Single family detached b) Single family attached (Town house)
    c) High-rise apartment d) Other apartment e) Mobile home f) Other

13. At your current residence do you: a) Rent b) Own c) Other

14. Predominant type of transportation used for commuting to work and GSU: a) Drive b) MARTA c) Drive/MARTA
    d) Walk e) Bicycle f) Car pool g) Other

15. Do you live: a) Alone b) With roommate c) With spouse c) With parents d) Other

16. If available, would you live in housing on, adjacent to, or near, GSU's campus? a) Yes b) No

    If yes: how much would you pay for housing near GSU in monthly rent? $ _____

17. What is the zip code of your current address? _____

18. Please estimate <u>your</u> average <u>monthly</u> expenditures:

	Within Atlanta Metro Area
A. Rent or house payment	$_____
B. Utilities (gas, lights, telephone, etc.)	_____
C. Food consumed at home and household items	_____
D. Eating Out (restaurants, fast-food establishments,etc.)	_____
E. Entertainment (sports, concerts, movies, etc.)	_____
F. Automobile (payment, repairs, gas, insurance)	_____
G. Other Transportation (bus, carpooling, etc.)	_____
H. Clothing	_____
I. Personal Services (hair, laundry, repairs)	_____
J. Other	_____

APPENDIX B-2

ESTIMATION OF STUDENT SPENDING (FALL 1989)

		Percentage Distribution									
	N	Male	Female	DS	Freshman	Sophomore	Junior	Senior	Law	Graduate	Other
Student Population	(23,039)	42.7	57.3	5.2	12.3	11.9	14.7	20.7	2.6	26.9	5.7
Student Sample	(1,977)	43.8	56.2	5.2	8.9	8.9	18.3	21.3	6.0	26.3	5.1

Spending Category	Sample Annual Average	Weighted Annual Average*
Housing	$ 3,791	$ 3,674
Utilities	972	945
Food and Household	1,674	1,639
Eating Out	913	902
Entertainment	641	640
Automobile	2,112	2,085
Other Transportation	175	177
Clothing	741	751
Personal Services	409	406
Other	467	463
TOTAL	$11,895	$11,682

*Weighting factors are the ratios of total population enrollment for each class to the total for all classes, i.e., 12.3% for freshmen, 11.9% for sophomores, etc.. Factors are based on class rather than sex because the deviation of the population and sample distribution is greater by class.

Appendix C-1

FACULTY/STAFF QUESTIONNAIRE

The following items are intended to help estimate the economic impact of Georgia State University on the Atlanta metropolitan area.

Please circle your response.

A. What is your primary employment status at Georgia State University?

1) Full-time faculty 2) Part-time faculty 3) Full-time administration 4) Part-time administration
5) Full-time staff 6) Part-time staff

B. In what type of housing do you reside? 1) Rent 2) Own house

C. 1) Live alone 2) Live with roommate/spouse 3) Live with parents

D. If available, would you live in housing adjacent to, or near, Georgia State University campus?
1) Yes 2) No

E. What is the zip code of your current address? _____

Please estimate your average monthly expenditures:

F. Rent or house payment (include condo. maintenance fee) $ _____
G. Utilities (water, gas, lights, telephone) _____
H. Food consumed at home & household items _____
I. Eating out (restaurants & fast food establishments) _____
J. Entertainment (theatre, sports, concerts, etc.) _____
K. Automobile (payments, repairs, gas, insurance) _____
L. Other transportation (bus, carpooling, etc.) _____
M. Clothing _____
N. Personal service (laundry, hair, repairs) _____
O. Health services (including insurance) _____
P. Furniture and appliances _____
Q. Other _____

APPENDIX C-2

ESTIMATION OF FACULTY/ADMINISTRATION/STAFF SPENDING (FALL 1989)

	N	Full-Time Faculty	Part-Time Faculty	Full-Time Administrators	Part-Time Administrators	Full-Time Staff	Part-Time Staff
Population	(2,996)	25.1	1.3	10.0	0.3	40.0	23.3
Sample	(284)	35.2	0.3	16.2	---	44.4	3.9

Spending Category	Sample Annual Average	Weighted Annual Average*
Housing	$ 7,272	$ 6,414
Utilities	1,905	1,714
Food and Household	3,330	3,164
Eating Out	1,509	1,390
Entertainment	742	664
Automobile	3,351	3,069
Other Transportation	126	146
Clothing	1,118	1,084
Personal Services	773	685
Other	2,187	1,751
TOTAL	$22,313	$20,081

*Weighting factors are the ratios of faculty/administration/staff population in each category, to the population total, i.e., 25.1% for full-time faculty, 1.3% for part-time faculty, etc..

APPENDIX D

CALCULATION OF INITIAL IMPACT BY UNIVERSITY PURCHASES*
USING LOCAL VALUE-ADDED RATIOS

(1) Item	(2) Amount of Local Purchase	(3) SIC Code	(4) Value-Added Ratio**	(5) Value-Added Amount (2) x (4)
Employee Travel and Benefits	$ 1,857,590	7000	.285	$ 529,413
Taxes and Utilities	4,586,448		.397***	1,820,820
Trade Purchases	7,738,493	5000	.126	975,050
Finance and Insurance	133,709	7300	.378	50,542
Rental	1,127,011		.219***	246,815
Repair Services	2,945,011	7600	.357	1,051,369
Business Services	6,868,639	7300	.378	2,596,346
Vehicle Repair and Service	167,011	7500	.202	33,736
Other	628,523	5000	.126	79,194
TOTAL	$26,052,435			$7,383,285

*Adapted from S.R. Bresler, "Multiplier for a Public Program," unpublished dissertation, from Georgia State University, 1974, pp. 35-37.

**Atlanta sales-payroll ratios are calculated from census data presented in the Geographical Area Series for Georgia:
Census of Retail Trade, U.S. Department of Commerce, 1987, Table 8
Census of Service Industries, U.S. Department of Commerce, 1987, Table 8
Census of Wholesale Trade, U.S. Department of Commerce, 1987, Table 8

***J. Wilson, "Economic Impact of a University on the Local Economy," unpublished dissertation, Kent State University, pp. 148 & 153.

APPENDIX E

COMPUTATION OF A DIFFERENTIAL EXPENDITURE MULTIPLIER*
USING LOCAL VALUE ADDED

$m = 1 + (r / (1 - s))$ where m = multiplier
r = initial spending
s = re-spending ratio

A. Computation of r, the proportion of total university spending that is spent locally.

1. Local consumption by university employees (survey) = $49,805,748
2. Gross payroll to university local employees = $82,498,649
3. Portion of payroll spent locally [(1) / (2)] = .604
   (Proxy for all local payroll spending)
4. Value added by univesity's local purchases (Appendix D) = $7,383,285
5. Initial local income generated by purchases [(3) X (4)] = $4,459,504
6. Total initial income spending [(1) + (5)] = $54,265,252
7. Total university spending [all purchases + (2)] = $108,551,084
8. Ratio of initial local spending to total spending [(6) / (7)] = .500

B. Computation of s, secondary local spending induced by initial local spending.

9. Local value added by total local spending [(6) X (.126**)] = $6,837,422
10. Induced local spending [(9) X (3)] = $4,129,803
11. Ratio of induced local spending to initial local spending [(10) / (6)] = .076

C. Computation of multiplier.

12. [1.000 - (11)] = .924
13. [(8) / (12)] = .541
14. [1.000 + (13)] = 1.541

*Adapted from S.R. Bresler, "Multiplier for a Public Program," unpublished dissertation, Georgia State University, 1974, pp. 34-46.

**Trade purchases value added, Appendix D, col. (4); Bresler, p. 44.

APPENDIX F-1

ATLANTA MSA
SALES/EMPLOYEE RATIOS

(1) Sector	(2) SIC Code	(3) Sales* (in thousands)	(4) Employees	(5) Sales/Employees Ratio [(3) / (4)]
Housing				$121,498**
Utilities				33,443**
Food and Household	540	$3,785,617	35,511	106,604
Eating Out	581	2,529,804	89,305	28,328
Entertainment	780 790 840	696,385	11,140	62,512
Automobile	550 555	6,994,880	28,269	247,440
Clothing	560	1,124,581	14,285	78,725
Personal Services	720	481,111	15,501	31,037
Other	590	1,936,335	22,443	86,278

*Atlanta Sales/Employee Ratios are calculated from census data presented in the Geographic Area Series for Georgia:
Census of Retail Trade, U.S. Department of Commerce, 1987, Table 8.
Census of Service Industries, U.S. Department of Commerce, 1987, Table 8.
Census of Wholesale Industries, U.S. Department of Commerce, 1987, Table 8.

Census data are converted to 1989 prices with the ratio of 1987 (115.3) to 1989 (125.6) indexes. See Business Conditions Digest, December, 1989, p. 84.

**J. Wilson, "Economic Impact of a University on the Local Economy," unpublished dissertation, Kent State University, pp. 148 & 153.

APPENDIX F-2

CALCULATION OF EMPLOYEE EQUIVALENT OF STUDENT SPENDING

(1) Student Spending Category	(2) Annual Amount of Local Purchases*	(3) Local Sales/Employee**	(4) [(2) / (3)] Employee Equivalent
Housing	$25,394,688	$121,498	209
Utilities	6,531,840	33,443	195
Food and Household	11,328,768	106,604	106
Eating Out	6,234,624	28,328	220
Entertainment	4,423,680	62,512	71
Automobile	14,411,520	247,440	58
Clothing	5,190,912	78,725	66
Personal Services	2,806,272	31,037	90
Other	3,200,256	86,278	37
TOTAL	$79,522,560		1,052 (University Employment Equivalent generated by local student spending)

*Data from Student Spending Survey. Total for only 30% (6912) of student population (23,039) drawn to Atlanta by Georgia State University.

**Values from Appendix F-1, col. 5.

Reference: J.H. Wilson and R. Raymond, "Economic Impact of a University on the Local Community," Annals of Regional Science, (vol. 7), December 1973, p. 141.